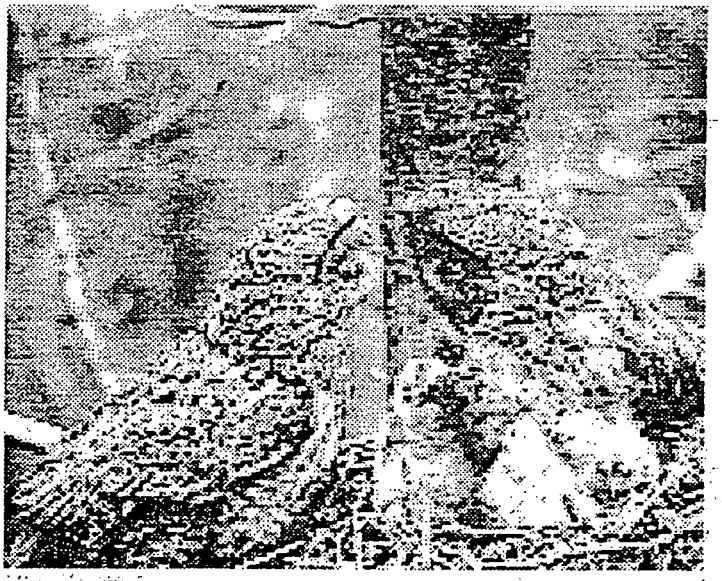
IE600

Environmental Restoration Program



Monthly Report for October 1993

Rocky Flats Office

November 20, 1993

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EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR OCTOBER 1993

Revisions to the Operable Unit 1 (OU), 881 Hillside, Final Phase III Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) report were completed in October 1993. OU 1 was specifically exempted from the new, proposed methodology for data aggregation in future risk assessments. OU 1 will use a previously formulated approach that allows continued progress with the Phase III RFI/RI Report.

The final RI well test for the Bedrock field program was performed in OU 2, 903 Pad Area, and the field project was completed.

The OU 2 soil vapor extraction pilot plant is operational and ready to function. However, the September 1993 start-up date was delayed because of the presence of non-aqueous phase liquids (NAPLs) encountered at Test Site 1. A course of action to modify the current system was agreed to by the regulatory agencies and DOE in October 1993. A new schedule and extension request will be provided.

As of October 1, 1993, the OU 4 dispute resolution was resolved when the regulatory agencies and the Department of Energy (DOE) agreed to a reduction of 40 days from the proposed remediation schedule for Solar Pond Closure. A total acceleration of 16 months from the original Interagency Agreement (IAG) to start of construction was realized. The streamlined approach to OU 4 Phase I Remediation accelerated the schedule for Solar Pond closure by consolidating the administrative and design processes. Weekly meetings have been held among the regulatory agencies, DOE, and EG&G since the OU 4 dispute resolution was settled. This exchange of information is part of the streamlined remediation schedule needed to support the new IAG dates for pond closure.

A Process Improvement Team (PIT) was established to develop a strategy to disposition all tanks at the Rocky Flats Plant (RFP). The team includes personnel from DOE and EG&G, and will work to ensure IAG compliance The issue of how to handle the disposition of OU 9's non-RCRA active tanks is being reviewed.

A stop work directive was initiated in August 1993 on sections of the baseline risk assessment for OU 2 through OU 7. The stop work order provided time for the IAG parties to evaluate the proposal for identifying contaminants of concern (COC) and data aggregation methodology. In October 1993, the parties to the IAG reached a preliminary consensus on a methodology for background comparisons for the baseline Human Health Risk Assessment (HHRA) for OU 2 through OU 7.

The Industrial Area Interim Measures/Interim Remedial Action Plan (IA IM/IRAP) is being designed to avoid duplication of data or previous efforts. A Health and Safety Plan (HSP) and site characterization for the IM/IRA are being derived from the existing integrated OU project, thus expediting the development of the IM/IRA document. The regulatory agencies will take part in bimonthly progress meetings with DOE and EG&G, which will facilitate a timely transfer of information and reduce document review time.

Prior to initiation of field work for OU 10 and OU 12, the Integrated OUs 8, 9, 10, 12, 13, and 14 completed a soil sampling practice run to practice soil sample collection techniques. OU 10 began field work in the Property Utilization and Disposal (PU&D) yard on October 20, 1993.

In the draft Surface Water Management Interim Measure/Interim Remedial Action (IM/IRA) Decision Document (DD), work continues on the draft Chapter One through Five. Final option evaluation for risk analysis and National Environmental Policy Act (NEPA) were initiated. Chapter Six, which describes implementation plans for the selected options, is being developed. DOE will review the final draft document on February 10, 1994.

The Health Advisory Panel on Phase I of the Dose Reconstruction Study released results of the project in a news conference and a public meeting in October 1993. Significant conclusions from the Phase I study are as follows: (1) historical offsite doses are very small; (2) plutonium and carbon tetrachloride are the primary COC; (3) inhalation is the primary pathway; and (4) the events of greatest concern are the 903 pad, the 1957 fire, and routine emissions of carbon tetrachloride.

IAG Performance Indicators for Monthly Report

Number of IAG Table Six Milestones to Date	Current FY94 (10/1/93 - 9/30/94)	Since IAG Inception
Scheduled (including approved extensions)	1	101
Met	0	88
Extensions Granted	0	22
Extensions Denied	0	2
Remaining this FY94 (to 9/30/94)	38	n/a
Added	0	0
Deleted	1	4

Deliverable in Review by Regulators	Project	Date Submitted
	OU 14 Final Phase I RFI/RI Work Plan	19 Oct 92

Field Work Currently Underway	Project	Scheduled/Actually Completed
Please note: these dates reflect scheduled field work and completed field work.	OU 1	25 Jun 92
	OU 2	08 Oct 93
	OU 3	13 Jul 93
	OU 4	Jan 96[a]
	OU 5	15 Jul 93
	OU 7	30 Apr 93
	OU 8	16 Sep 94
	OU 9	18 Aug 94
	OU 10	15 Aug 94
	OU 12	05 Sep 94
	OU 13	17 Feb 95
	OU 14	11 May 95
	OU 15	12 Nov 93

[a] for all field work phases

IM/IRA Status	Gallons Treated
OU 1 881 Hillside Treatment	1,592,841 gallons
OU 2 903 Pad Water Treatment	18,602,110 gallons
OU 4 Water Management Tasks	Project is in operations phase

IAG Document Deliverables Due Next 6 months	Due Date	Expected Date
OU 1 Draft CMS/FS Report	11 Feb 94	31 Mar 94
OU 1 Final Phase III RFI/RI Report	15 Nov 93	15 Nov 93 *
OU 1 Final Proposed Plan	04 Jan 94	17 May 95 *
OU 2 Draft CMS/FS Report	04 Nov 93	17 Oct 96 *
OU 3 Draft Phase I RFI/RI Report	14 Feb 94	02 Nov 93*
OU 4 Draft Phase I Proposed IM/IRA Decision Document (DD)	14 Apr 94	14 Apr 94*
OU 4 Draft Phase II RFI.RI Work Plan	22 Apr 94	22 Apr 94
OU 5 Draft Phase I RFI/RI Report	30 Nov 93	09 Feb 95 *
OU 6 Final Phase I RFI/RI Report	07 Jan 94	10 Jul 95*
OU 7 Final Phase I RFI/RI Report	16 Mar 94	02 Sep 94*
OU 8 Draft Phase I RFI/RI Report	14 Feb 94	12 Nov 15
OU 9 Draft Phase I RFI/RI Report	11 Apr 94	04 Jan 01
OU 12 Draft Phase I RFI/RI Report	20 Apr 94	11 Mar 99

Overdue Deliverables	Due Date	Expected Date
OU 1 Draft Proposed Plan	27 Sep 93	30 Sep 94
OU 2 Draft RFI/RI Report	12 Mar 93	16 Dec 93 *
OU 2 Final Phase II RFI/RI Report	09 Aug 93	23 May 94 *
OU 2 Final Treatability Test Report (RRS)	13 Jul 93	08 Sep 93 *
OU 7 Draft Phase I RFI/RI Report	12 Oct 93	20 Dec 93 *

*TBD because of HHRA issues work stoppage.

PROBLEMS AND PROGRAMMATIC ISSUES

A stop work directive was received from the regulatory agencies in August 1993 on sections of the baseline risk assessment. The method of data aggregation for the HHRA was one of the issues that needed to be resolved by the regulatory agencies. Data aggregation has different requirements under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and RCRA. At a meeting held October 12, 1993, the regulatory agencies presented a compromise approach to the data aggregation issue. To date, this issue is still unresolved and the stop work order continues to impact work schedules.

OU 4 has encountered problems with the evaporators in Building 910 and 374. High conductivity distillate continues in the Building 910 evaporator. In Building 374, there are problems with the evaporator and a leak in the condensate return line. An extended shutdown of Building 374 is required to fix the leak.

There are characterization and assessment problems associated with Individual Hazardous Substance Sites (IHSSs) in OUs 9, 10, and 15. In OU 10, IHSS 213 (904 storage pad) and IHSS 214 (750 storage pad) cannot be assessed until all materials stored there are removed and all IHSSs are decommissioned. However, IHSSs 213 and 214 are going to be used to store sludge from OU 4 IM/IRA activities. DOE wants to transfer these IHSSs to OU 4 and then OU 10 can complete Phase I assessment. The regulatory agencies are aware of these problems and have conceded to a delay in the assessment because of waste storage for OU 4.

An issue regarding which organization is responsible for relocating stored materials in or around the OU IHSSs must be resolved. Until this issue is resolved, no efforts will be made to begin work on removing all materials found in or around IHSSs 170/174 and 176. Work will proceed in areas where material storage will not adversely affect data collection activities.

NEAR-TERM IAG TABLE SIX MILESTONES

OU#	IAG Milestone Description	Date Scheduled to EPA/CDH	Status
2[a]	Submit Draft Phase II RFI/RI Report	12 Mar 93	Extension denied/ (delinquent)
2[a]	Submit Final Treatability Test Report	13 Jul 93	Extension to 8 Sep 93 (delinquent)
3[a]	Submit Draft Phase I RFI/RI Report	16 Jul 93	Extension to 14 Feb 94
6[a]	Submit Draft Phase I RFI/RI Report	04 Aug 93	Extension to 10 Jun 94
2[a]	Submit Final Phase II RFI/RI Report	09 Aug 93	Extension denied/delinquent
7[a]	Submit Draft Phase I RFI/RI Report	12 Oct 93	*
4	Submit Final Phase I RFI/RI Report	18 Oct 93	Deleted
2[a]	Submit Draft CMS/FS Report	04 Nov 93	*
1	Submit Final Phase III RFI/RI Report	04 Jan 93	Extension to 15 Nov 93
5[a]	Submit Draft Phase I RFI/RI Report	30 Nov 93	Extension request submitted
3[a]	Submit Final Phase I RFI/RI Report	13 Dec 93	Extension to 21 Oct 94
1	Submit Draft Proposed Plan	27 Sep 93	Extension request submitted
1	Submit Final Proposed Plan	04 Jan 94	Extension request submitted
6[a]	Submit Final Phase I RFI/RI Report	07 Jan 94	Extension to 18 Nov 94
1	Submit Draft CMS/FS Report	31 Mar 93	Extension to 11 Feb 94
8	Submit Draft Phase I RFI/RI Report	14 Feb 94	*
7[a]	Submit Final Phase I RFI/RI Report	16 Mar 94	*
9	Submit Final Phase I RFI/RI Report	11 Apr 94	*
4	Submit Draft Phase I Proposed IM/IRA Decision Document	14 Apr 94	On schedule
12	Submit Draft Phase I RFI/RI Report	20 Apr 94	Extension request submitted
4	Submit Draft Phase II Work Plan	22 Apr 94	On schedule
5[a]	Submit Final Phase I RFI/RI Report	03 May 94	Extension request submitted
1	Submit Draft Responsiveness Summary	06 May 94	*
2[a]	Submit Final CMS/FS Report	10 May 94	*
2[a]	Submit Draft Proposed Plan	10 May 94	*
8	Submit Final Phase I RFI/RI Report	12 Jul 94	*
15	Submit Draft Phase I RFI/RI Report	01 Aug 94	On schedule
1	Submit Final CMS/FS Report	03 Aug 94	*
1	Submit Draft CAD/ROD	03 Aug 94	*
1	Submit Final Responsiveness Summary	03 Aug 94	*
13	Submit Draft Phase I RFI/RI Report	08 Aug 94	*
2[a]	Submit Final Proposed Plan	09 Aug 94	*
10	Submit Draft Phase I RFI/RI Report	25 Aug 94	*
9	Submit Final Phase I RFI/RI Report	06 Sep 94	*
7[a]	Submit Draft Phase II RFI/RI Work Plan	13 Sep 94	*
12	Submit Final Phase I RFI/RI Report	15 Sep 94	Extension request submitted
4	Submit Final Phase II RFI/RI Work Plan	19 Sep 94	On schedule
11	Submit Draft Phase I RFI/RI Report	20 Sep 94	*
1	Submit Final CAD/ROD	01 Nov 94	*
4	Submit IM/IRA Responsiveness Summary	01 Nov 94	On schedule
7[a]	Submit Draft Phase I Proposed IM/IRA Decision Document	01 Nov 94	*
14	Submit Draft Phase I RFI/RI Report	20 Dec 94	*

* Behind original IAG schedule; extension required.

[a] OU 2 through OU 7 may require additional extensions because of HHRA issues work stoppage.

SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration Program for October 1993. This program implements the Interagency Agreement (IAG) among the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats Plant (RFP) in Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

The Executive Summary of this report highlights significant achievements, summarizes milestone information, and presents any major unresolved issues of the program. Technical progress, schedule status, and milestone status for each Operable Unit (OU) as well as other program activities are presented in Section 2. Section 3. contains the schedules for routine environmental sampling as required by Paragraph 210 of the IAG. Section 4. contains a list that identifies the contractors and subcontractors performing work on the program as required by Paragraph 13 of the IAG.

SECTION 2. PROJECT STATUS

2.1 OU 1 - 881 HILLSIDE AREA

The alluvial ground water at the 881 Hillside Area, located north of Woman Creek in the southeast section of Rocky Flats Plant (RFP), was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is approximately 2 miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSS) that make up OU 1 are being investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface ground water and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface ground water flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, and released onsite into the South Interceptor Ditch (SID) along Woman Creek. Water collected from this ditch undergoes a secondary analysis prior to release. IRA construction was completed in April 1992. The Remedial Investigation and Feasibility Study (RI/FS) to determine the final remedial action are continuing in parallel with operation of the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Reporting Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments

Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
Submit Final Phase III RFI/RI Work Plan	31 Oct 90
Submit Draft Phase III RFI/RI Report	28 Oct 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Final Phase III RFI/RI Report	04 Jan 93	15 Nov 93	15 Nov 93*
Submit Draft CMS/FS Report	31 Mar 93	11 Feb 94	31 Mar 94*
Submit Final CMS/FS Report	27 Sep 93	03 Aug 94	30 Sep 94*
Submit Draft PP	27 Sep 93	Pending	30 Sep 94*
Submit Final PP	04 Jan 94	Pending	17 May 95*
Submit Draft Responsiveness Summary	06 May 94		02 Nov 95*
Submit Final Responsiveness Summary	03 Aug 94		12 Apr 96*
Submit Draft CAD/ROD	03 Aug 94		12 Apr 96*
Submit Final CAD/ROD	01 Nov 94		13 Dec 96*
Submit Draft Title II Design	05 Jul 95		14 Aug 97*

October Work Activity Status

Remedial Investigation (RI) - Internal review of the Final Phase III RFI/RI document is complete. Revisions to the document were completed in October 1993. The proposed schedule for delivery of the Final Phase III Report is under discussion. Revisions to the proposed schedule are being made.

A meeting was held on October 13, 1993, discussing the Programmatic Environmental Impact Statement (EIS).

A meeting was held among the regulatory agencies, DOE, and EG&G concerning methodology for data aggregation in future risk assessments. OU 1 was specifically exempted from the new proposed approach. The methodology to be used in OU 1 to determine contaminants of concern (COCs) is an approach that was formulated months ago. Using this approach allows work to continue on the Final Phase III RFI/RI. All remaining OUs will adopt the new methodologies for selection of COCs and data aggregation in their risk assessments in the future.

Feasibility Study/Corrective Measures Study (FS/CMS) - Work on the FS proceeded with a review of the alternatives. Work on Technical Memorandum (TM) #11, *Alternatives Array*, was underway and completion was scheduled for October 1993; however, because of the duration of the stop work order, the completion date for TM #11 needs to be renegotiated. TM #10, *Preliminary Remediation Goals*, will also require some revisions, based on results of the Final Phase III RFI/RI Report.

The status of and plans for the FS report are being reviewed.

Technical Memoranda

Project	**OU 1 881 Hillside**
TM #10	
TM Title	Preliminary Remediation Goals
TM Status	Submitted Draft TM to DOE: Feb 93 DOE comments were completed for Appendix A of TM 10: May 93. When preparation was concluded or is estimated to be concluded: 15 Aug 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when comments were received: N/A

TM #11	
TM Title	Alternative Array
TM Status	Submitted Draft TM to DOE: 21 Oct 93 - Delayed by stop work order. When preparation is concluded or is estimated to be concluded: Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when comments were received: N/A
Planned Work for November	• Continue work on the FS. • Submit Final Phase III RFI/RI Report to regulatory agencies for review.
Problems	None
Open Items	None

2.1.2 OU 1 REMEDIATION

Scope of Work Changes This Period	None
Technical Approach Changes This Period	None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91
Complete IM/IRA Construction (891 treatment building)	02 Mar 92
Complete IM/IRA Construction (French drain)	13 Apr 92

Future IAG Milestones Through FY95

None

October Work Activity Status

Problems were encountered with the neutralization of Tank 210. More water was routed to the neutralization tank than the tank design will allow. The Tank 210 water was neutralized, sampled, and taken to the 374 evaporator. The remaining steps of the regeneration process were then completed, and the system is now fully operational. Water was collected in accordance with the Interim Remedial Action Plan (IRAP) during this period.

The retreatment of water from Tank 207 is complete. This water was diverted into Tank 206 so that Tank 207 could be inspected. Tank 206 will be sampled for discharge when the tank becomes full. Some changes in the monthly sampling will be implemented in order to include more intermediate points within the ion exchange (IX) system. The additional sampling points may provide more information about recent iron removal difficulties.

During routine sampling of Tank 205 for discharge, it was discovered that the pH of the water was out of limits and required retreatment. Retreatment was started and 25,500 gallons of the water were retreated. Retreatment operations were shutdown when a pressure regulating valve in the regeneration system began to leak. The pressure regulator was changed out and repair began on October 28, 1993. However, a valve was found to be leaking during the testing of the system. It is expected that this repair will be completed in November 1993. The treatment system was shutdown during this time; however, collection of water from the French drain continued.

The installation of the in-line gas chromatograph began and will continue into November 1993.

Collection and treatment of ground water continues on an as needed basis.

Total treated ground water this month: 23,584 gallons
Total treated water to date: 1,592,841 gallons

Planned Work for November

- Installation of the gas chromatograph.
- Continue routine collection and treatment of ground water.

Problems

Problems were encountered with the neutralization of Tank 210. Adjustments were made and the system is now fully operational.

Open Items

None

2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent; some may have contaminants that were not removed by the treatment system.

An IM/IRA provides for surface water in source areas of contamination to be collected, treated, and discharged to the surface water drainage. Operation of a field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process is evaluated at three locations: the entrance to the treatment facility, several points within the facility, and the discharge point. After completion of the field-scale treatability tests, the unit is anticipated to remain in service until the final remedial action is operational. The RI and FS are continuing in parallel with the IRA.

A second IM/IRA was established in late-1991. This Subsurface Investigation Interim Measure/Interim Remedial Action/Environmental Assessment (IM/IRA/EA) is north of Woman Creek and encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRA evaluates remedial technology actions for removal of residual free-phase Volatile Organic Compound (VOC) contamination from three distinct subsurface environments at OU 2. Each of the VOC-removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial actions for the collection of information will aid in the selection and design of final remedial actions that address subsurface, residual free-phase VOC contamination at OU 2.

2.2.1 OU 2 ASSESSMENT

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
	Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
	Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
	Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase II RFI/RI Report	12 Mar 93	Denied	16 Dec 93*
Submit Final Phase II RFI/RI Report	09 Aug 93	Denied	23 May 94*
Submit Draft CMS/FS Report	04 Nov 93		17 Oct 96*
Submit Final CMS/FS Report	10 May 94		26 Jun 97*
Submit Draft PP	10 May 94		26 Jun 97*
Submit Final PP	09 Aug 94		13 Jan 98*
Submit Draft Responsiveness Summary	13 Dec 94		30 Jun 98*
Submit Draft CAD/ROD	16 Mar 95		02 Dec 98*
Submit Final Responsiveness Summary	16 Mar 95		02 Dec 98*
Submit Final CAD/ROD	15 Jun 95		10 Aug 99*

*TBD due to HHRA issues work stoppage.

October Work Activity Status

The final well test for the Bedrock field program was performed, and this field project was completed.

The stop work order issued by DOE at the request of the regulatory agencies was partially lifted for the OU 2 determination of COCs. Work is proceeding towards finalizing the TM #9, *Chemicals of Concern*. The second issue under the stop work order is the method of data aggregation. This issue has not been resolved.

The Master Task System (MTS) subcontract is being modified to incorporate risk assessment tasks previously in the Basic Ordering Agreement (BOA). A proposal was received and a technical evaluation is in progress. Certain tasks were started to facilitate work on the Draft Phase II RFI/RI Report. These include incorporation of soil data and the TM #9, *Chemicals of Concern*. Work is proceeding towards finalizing the TM.

Feasibility Study (FS) - A kickoff meeting between EG&G and the subcontractor for this project was held on October 25, 1993.

Technical Memoranda

Project	OU 2-903 Pad, Mound, and East Trenches
TM#5	
TM Title	Exposure Scenarios
TM Status	When preparation is concluded or is estimated to be concluded: 15 Jan 93 Projected date of submittal to EPA/CDH: 15 Jan 93 Actual date of submittal: 15 Jan 93 Date when comments were received: 11 Feb 93 EPA, 12 Mar 93 CDH
TM#6	
TM Title	Modeling
TM Status	When preparation is concluded or is estimated to be concluded: 15 Jan 93 Projected date of submittal to EPA/CDH: 15 Jan 93 Actual date of submittal: 15 Jan 93 Date when comments were received: 01 Apr 93 EPA, 31 Mar 93 CDH
TM#7	
TM Title	Surficial Soils
TM Status	When preparation is concluded or is estimated to be concluded: 07 Jan 93 Projected date of submittal to EPA/CDH: 07 Jan 93 Actual date of submittal: 12 Jan 93 Date when comments were received: 21 Jan 93 TM Approved
TM#8	
TM Title	Bedrock
TM Status	When preparation is concluded or is estimated to be concluded: 15 Mar 93 Projected date of submittal to EPA/CDH: 01 Mar 93 Actual date of submittal: 15 Mar 93 Date when comments were received: 14 Apr 93 EPA, 14 Apr 93 CDH
TM#8 Addendum	
TM Title	Contingency Plan for revised Phase II RFI/RI Work Plan (Bedrock)
TM Status	When preparation is concluded or is estimated to be concluded: Projected date of submittal to EPA/CDH: None Actual date of submittal: Date when comments are received:

TM #9	
TM Title	Chemicals of Concern
TM Status	When preparation is concluded or is estimate to be concluded: 24 Aug 93 Projected date of submittal to EPA/CDH: Unknown due to work stoppage Actual date of submittal: Date when comments are received:
TM #10	
TM Title	Toxicity Assessment
TM Status	When preparation is concluded or is estimated to be concluded: 24 Aug 93 Projected date of submittal to EPA/CDH: Unknown due to work stoppage Actual date of submittal: Date when comments are received:
Planned Work for November	• Continue Soil Vapor Extraction. • Continue FS. • Continue Surface Water IM/IRA • Continue IRA Report.
Problems	None
Open Items	The regulatory agencies are working to arrive at a compromise approach to the Human Health Risk Assessment (HHRA) work stop order issue of data aggregation.

2.2.2 OU 2 REMEDIATION

Scope of Work Changes This Period	None
Technical Approach Changes This Period	None

IAG Milestone Accomplishments

Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
Submit Draft Responsiveness Summary	13 Dec 90
Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
Field Treatability Test System Installation Complete	10 May 91
Begin Field Treatability Testing (Carbon System)	03 May 91
Submit Draft Treatability Test Report (Phase I GAC)	01 Apr 92
Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92
Begin Field Treatability Testing (radionuclides removal system)	27 Apr 92
Submit Final Treatability Test Report (Phase I GAC)	02 Jun 92
Submit Subsurface Site I Draft Test Plan	29 Oct 92
Submit Subsurface Site I Final Test Plan	12 Jan 93
Submit Subsurface Site 2 Draft Test Report	24 Jun 93
Submit Draft Surface Water Field Treatability Report	13 Jul 93

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase II Treatability Study Report	18 May 93	13 Jul 93	13 Jul 93
Submit Final Phase II Treatability Study Report	13 Jul 93	08 Sep 93	08 Sep 93

* TBD due to the HHRA stop work order

October Work Activity Status

Subsurface Water (SW) IM/IRA - DOE Comments were incorporated into the Interim Measure/Interim Remedial Action (IM/IRA) Implementation and Operation Plan for the Soil Vapor Extraction (SVE) Pilot Test. These comments were delivered to the regulatory agencies on October 4, 1993.

DOE discussed with the regulatory agencies the impact on non-aqueous phase liquids (NAPLs) encountered at Test Site 1. This project was granted a 5-week extension to evaluate the impact of the NAPLs. Evaluation of the NAPLs was completed and a recommended course of action was presented. A new schedule and an extension request were provided for the start of testing at Site 1.

A scope of work was developed for reconfiguration of the Mobile Soil Vapor Extraction (MSVE) pilot plant. The new scope will allow operation of the MSVE pilot plant in the presence of high concentrations of NAPLs. This scope was presented to change control and consists of:

- Design and installation of an outside air dilution system to control extracted gas concentration to the off-gas treatment system.
- Design and installation of an Infrared Organic Analyzer for real-time measurements of extracted gas concentrations.
- Design and installation of a real-time temperature measurement system in the Granulated Activated Carbon (GAC) beds.
- RFP support for the reconfiguration.

The CDH Air Quality Group performed a site inspection of the SVE pilot plant.

Two wells are being developed for the SVE Test 1. After development is completed, ground water extraction pumps will be installed.

Subcontractor training for the soil vapor survey was completed. The Operational Readiness Review (ORR) was conducted on October 18, 1993. The Pre-evolutionary briefing was conducted on October 19, 1993. Mobilization and the Field Instrument Detection Low energy Radiation (FIDLER) began October 22, 1993.

Surface Water (SW) IM/IRA - Sampling problems at the Surface Water Field Treatability Unit (FTU) and South Walnut Creek were resolved. A sampling plan is being written to further clarify the situation. In addition, 2 weeks of quick turnaround analytical results were requested from the laboratory for the culvert at the SW IM/IRA; only 2 days worth of data were received. With the exception of a few metals, most of the analytes are below applicable or relevant and appropriate requirements (ARARs).

The Final Surface Water (SW) IM/IRA Treatability Study Report (TSR) is pending completion until comments on the draft report are received. The Field Sampling Plan (FSP) is being revised for the SW IM/IRA.

A small sulfuric acid spill (less than one pint) occurred at the SW FTU on October 26, 1993. The spill was caused by a leak in the storage tank. This leak was repaired.

Feasibility Study (FS) - Bids were received for the Phase I FS for OUs 2, 3, and 6. Technical evaluation of the bids was completed on October 6, 1993. A subcontract was issued for OU 2, 3, and 6 FSs.

New schedules were evaluated using critical path method analysis. After this evaluation was completed, DOE met with RFP personnel to discuss the "best case" project schedules. DOE will brief the regulatory agencies on the revised FS schedules.

Treated surface water this month:	589,074 gallons
Total treated water:	18,602,110 gallons

Planned Work for November

Subsurface IRA Program

- Continue work on the SVE Test 1.
- Continue treating water at the OU FTU.

Surface IRA Program

- Continue work on the sampling plan.
- Continue to treat water.
- Complete TSR.

Problems

None

Open Items

TSR is pending completion until comments are received.

2.3 OU 3 - OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay vs. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Past Remedy Report	26 Oct 90
Submit Draft Historical Information/ Preliminary Health Risk Assessment Report	09 Nov 90
Submit Final Past Remedy Report	02 Apr 91
Submit Final Historical Information/ Preliminary Health Risk Assessment Report	16 Apr 91
Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
Submit Final Phase I RFI/RI Work Plan	06 Dec 91

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	16 Jul 93	14 Feb 94	14 Feb 94*
Submit Final Phase I RFI/RI Report	13 Dec 93	21 Oct 94	21 Oct 94*

*TBD due to HHRA issue work stoppage.

October Work Activity Status

RFP Procurement is currently acting on Modification #7 of the subcontractor contract to develop the Draft and Final RI Reports. This modification provides resources needed to adjust the contract following the approval of the schedule extension. Work will begin on November 8, 1993.

The final version of the OU 3 Area of Concern (AOC) document was received by DOE on October 1, 1993. The EPA approval letter was included in the document. The initial mailing of this document includes local governments and private individuals.

A stop work directive was received from the regulatory agencies in August 1993 on sections of the baseline risk assessment. This stop work order allowed the parties to the IAG time to evaluate the Gilbert proposal for identifying COC. This issue was resolved. The second issue under the stop work order is the method of data aggregation. Data aggregation for the HHRA has different requirements under the CERCLA and RCRA. At a meeting held October 12, 1993, the regulatory agencies presented a compromise approach to the data aggregation problem; however, to date no agreement has been reached by the regulatory agencies on a method of data aggregation. A writeup of that proposal was delivered to DOE for review. The OU 3 project schedule will be extended on a day-for-day basis for the length of the stop work order.

A presentation by the Health Advisory Panel on Phase I of the Dose Reconstruction Study was held on October 20, 1993, and results of the project were released in a news conference and public meeting on October 21, 1993. Significant conclusions from the Phase I study are as follows: (1) historical offsite doses are very small; (2) plutonium and carbon tetrachloride are the primary COC; (3) inhalation is the primary pathway; and (4) the events of greatest concern are the 903 pad, the 1957 fire, and routine emissions of carbon tetrachloride.

Technical Memoranda

Project	OU 3-Offsite Areas
TM#1	
TM Title	Field Changes to RFI/RI Work Plan
TM Status	When preparation is concluded or is estimated to be concluded: 10 May 93 Projected date of submittal to EPA/CDH: 10 May 93 Actual date of submittal: 23 Apr 93 Date when comments were received: No comments expected.

TM#2	
TM Title	Exposure Scenarios for the HHRA
TM Status	When preparation is concluded or is estimated to be concluded: 12 May 93 Projected date of submittal to EPA/CDH: 12 May 93 Actual date of submittal: 03 May 93 Date when comments were received: 15 Jul 93
TM#3	
TM Title	Modeling
TM Status	When preparation is concluded or is estimated to be concluded: 29 Sep 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when comments were received: N/A
TM# 4	
TM Title	Contaminants of Concern
TM Status	When preparation is concluded or is estimated to be concluded: 18 Oct 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when comments were received: N/A Currently under a work stoppage
Planned Work for November	• Award subcontract for air/meteorological monitoring stations. • Begin scoping of OU 3 FS.
Problems	Stop work order has prevented completion of TM #4
Open Items	The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation.

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is comprised of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C, which were constructed for treatment and storage of process water from industrial operations. The process water contained treated acidic wastes, industrial liquid wastes (e.g., metal plating solutions), and low-level radioactive wastes.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and ground water was detected. Interceptor trenches were installed in 1971 to collect and recycle contaminated ground water to the ponds and to minimize natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were replaced by the current, larger interceptor trench system (ITS), which returned approximately 4 million gallons of ground water back into the solar evaporation ponds each year.

No additional process water has been pumped into the ponds since 1986. However, the ITS collected and returned ground water into the solar evaporation ponds until new storage tanks were completed and placed in operation in April 1993. The tanks allowed the RFP to stop placement of contaminated ground water into the ponds. This placement of water into the ponds had been occurring without meeting Land Disposal Restrictions and Minimum Technology Requirements of Resource Conservation and Recovery Act (RCRA). A new, dedicated Building 910 evaporation-treatment facility became operational in July 1993. This building processes the water stored in the modular tanks.

The Solar Evaporation Ponds Project has been comprised of four subprojects: (1) pond sludge processing by means of the Agreement in Principle between DOE and CDH; (2) a water management/treatment by means of the interim Measure/Interim Remedial Action (IM/IRA) Decision Document (DD) signed by EPA, CDH and DOE; (3) the OU 4 assessment and remedial action by means of the IAG, which identified the ponds as one of the sixteen Operable Units (OUs) to be remediated at the RFP and incorporated the 1988 Ponds-Closure Plan submitted by DOE to the regulators; and (4) pad operations and storage activities that are necessary to meet the plant's RCRA interim status and permit requirements with regards to storage of pond wastes. The water management and pond sludge clean-out are necessary precursors to OU 4 assessment and remediation, and pad operations are necessary support activities at least until the pond sludge waste is disposed. Revisions to these subprojects are being prepared in accordance with the recent dispute resolution for OU 4.

These four subprojects were planned to close the ponds and remediate the ponds area. The project was scoped to (1) remove water from the ponds, (2) provide a treatment facility to replace the ponds as evaporation-treatment and storage units for pond-related contaminated ground water, (3) remove and dispose of pond sludge in compliance with all regulations such as the Land Disposal Restrictions of RCRA, (4) assess the nature and extent of contamination at the ponds; (5) complete a RCRA closure of the impoundments; and (6) remediate the ponds as needed.

The April 1992 IM/IRA was developed as a regulatory agency requirement that was out of scope from the tasks outlined in the IAG. DOE attempted to modify an existing permit for water removal and treatment for liquids in the solar ponds and ground water collected by the

ITS, but the regulatory agencies rejected permit modification and required development of an IM/IRA to document operation and use of the proposed water treatment system and provide the permitting mechanism for the system. The development and implementation of this IM/IRA preceded and overlapped the IAG scheduled Phase I RFI/RI field work. All construction has been completed, and the IM/IRA treatment facility is now in operation.

The RCRA CERCLA investigation Phase I field work began in FY93 and will continue through construction of the final corrective/remedial action. The technical scope to be performed by means of the IAG is funded through the OU 4 Assessment and Remediation area, with the other areas funded to provide necessary precursor and support activities to allow that IAG scope be completed. There is an IM/IRA scheduled in the IAG that will be completed based on results from the Phase I RFI/RI field work. The first draft of the IAG IM/IRA is scheduled for delivery in April 1994, with intensive interaction between the plant and the regulators to ensure the draft will require very little revision.

2.4.1 OU 4 ASSESSMENT

Scope of Work Changes This Period

Project budget approval revisions have begun to incorporate the results of the OU 4 dispute resolution, as outlined in the Future IAG Milestones through FY95.

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 90

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	21 May 93	14 Sep 93	Deleted
Submit Final Phase I RFI/RI Report	18 Oct 93	14 Feb 94	Deleted
Submit Draft Phase I Proposed IM/IRA Decision Document (DD)	14 Apr 94		14 Apr 94
Submit Draft Phase II RFI/RI Work Plan	22 Apr 94		22 Apr 94
Submit Final Phase II RFI/RI Work Plan	19 Sep 94		19 Sep 94
Submit Draft IM/IRA Responsiveness Summary	01 Nov 94		01 Nov 94
All Solar Ponds Emptied of Water and Sludge	New		20 Jan 95
Submit IM/IRA Responsiveness Summary	25 Jan 95		01 Nov 94
Submit IM Design Work Plan (replaced with in-process design review)	24 May 95		Deleted
Submit Final Phase I IM/IRA DD and Final Responsiveness Summary	24 Apr 95		13 Jan 95
Submit Final IM/IRA Title II Design	24 Jun 96		10 Feb 95
Begin Actual I IM/IRA Construction	28 Jan 97		27 Sep 95

October Work Activity Status

As of October 1, 1993, the dispute resolution was resolved with the reduction of 40 days from the proposed remediation schedule being agreed to by the regulatory agencies and DOE. A total acceleration of 16 months from the original IAG to start of construction was realized.

The streamlined approach to OU 4 Phase I Remediation has accelerated the schedule for Solar Pond closure. In particular, the administrative and design processes were consolidated. To fulfill RFP's commitments to the regulatory agencies, it will be necessary to begin Title II Design prior to completion of the National Environmental Policy Act (NEPA) process. DOE routinely gives its concurrence with an overlap between Title II and the NEPA process, to ensure that DOE Order 4700.1 requirements for environmental planning and review are fulfilled.

Two Solar Pond impoundments, B-North and B-Center, are now available for remedial investigation sampling. Procedural changes, based on negotiations with the CDH, have occurred since the A-Pond drilling was performed. Modifications have started to plant manuals, policies, and procedures to revise the documents in conflict, but the effort will not be done in time to support the OU 4 schedule. Because of recent changes in drilling procedures, no storage area is available to immediately receive drill cuttings from the floor of Solar Pond B-Center and B-North. A change to interim status is necessary to store Investigative Derived Material (IDM) drums. A copy of the changes was delivered to CDH on October 15, 1993. Drilling was delayed until the change to interim status seems likely to be approved by CDH. A change to the project logic was incorporated to absorb the schedule impact without extending the critical path.

Work continues in support of the Baseline Change Proposal (BCP) for the rebaselining of the Phase I RFI/RI, IM/IRA, and Phase II RFI/RI programs to reflect the streamlined IM/IRA schedules.

Technical Memoranda

Project	OU 4-Solar Evaporation Ponds
TM #1	
TM Title	Vadose Zone Investigation
TM Status	Draft submitted to EPA/CDH: 16 Nov 92 Comments received: 30 Nov 92 Conditional Approval: 30 Nov 92 Projected submittal of Final to EPA/CDH: 15 Dec 92 Actual submittal date of Final: 15 Dec 92 Submittal of TM 1 Vadose Zone Schedule: 19 May 93 EPA/CDH Final Approval of TM 1: 17 Jun 93
TM #2	
TM Title	Modification to Field Activities
TM Status	Draft submitted to EPA/CDH: 18 Mar 93 Comments received: 07 May 93 Projected submittal of Final to EPA/CDH: 07 Jun 93 Actual submittal date of Final: 09 Jun 93 EPA/CDH Final Approval of TM 2: 30 Jun 93
TM #3	
TM Title	Environmental Evaluation
TM Status	Draft submitted to EPA/CDH: 19 Mar 93 Comments received: EPA 21 Apr 93 CDH 02 Jun 93 Projected submittal of Final to EPA/CDH: 30 Apr 93 Actual submittal date of Final: 02 Jul 93 EPA/CDH Final Approval of TM 3: 30 Jul 93
TM #4	
TM Title	Human Health Risk Assessment Exposure Scenarios
TM Status	Draft submitted to EPA/CDH: 19 Mar 93 Comments received: EPA 21 Apr 93, CDH 23 Apr 93 Projected submittal of Final to EPA/CDH: 11 Jun 93 Actual submittal date of Final: 11 Jun 93 EPA/CDH Final Approval of TM 4: 25 Jun 93
Planned Work for November	• Drilling and sampling in support of the RFI will be completed in Ponds B-Center and B-South. • Work Plans will be revised to incorporate results of the OU 4 dispute resolution.
Problems	Various logistics problems have delayed the scheduled OU 4 B-Pond RFI drilling. The effected section of the project schedule was replanned to avoid impacts to the critical path.

Open Items

Incorporation of the dispute resolution results into the project budget approval documents is pending.

2.4.2 OU 4 REMEDIATION

Scope of Work Changes This Period

The project budget approval documents are being revised to incorporate scope changes to the IM/IRA DD committed to in the OU 4 dispute resolution.

Technical Approach Changes This Period

Incorporation of an *ex situ* sludge storage, previously in planning, was formally incorporated into the IAG in the OU 4 dispute resolution. This storage strategy will be implemented through the Accelerated Sludge Removal Project (ASRP).

IAG Milestone Accomplishments

None. The first IAG remediation milestone for this OU is the Draft Phase I Proposed IM/IRA Decision Document (DD) scheduled for April 14, 1994.

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I Proposed IM/IRA Decision Document		14 Apr 94	14 Apr 94
Submit Final Phase I Proposed IM/IRA Decision Document		24 Jun 94	24 Jun 94

October Work Activity Status

Regulatory - Several RCRA storage areas are relied on to manage wastes generated at the Solar Ponds. These units are all under interim status. Several changes to interim status are necessary to support the ASRP and the IM Pond Closure Project.

Pondsludge Status and Issues - Seven vendors submitted bids as requested by the ASRP temporary storage tank solicitation package. The submittals were technically reviewed and a technical evaluation was completed on October 15, 1993. The ASRP temporary storage tank vendor subcontract award occurred on October 20, 1993. The vendor's Quality Assurance (QA) program will be validated in November 1993. Tanks are expected to begin arriving in December 1993.

The demobilization effort for the cementation equipment continued; all demobilization tasks are on schedule. A technical evaluation of proposal, negotiation plan, and schedule for negotiation of the costs and schedule for demobilization were completed.

Pad Operations and Storage - The Davis-Bacon committee determined that the removal of excess equipment work was covered and supplied a preliminary memorandum to RFP. The purchase requisition and construction package were submitted to RFP Procurement to begin contracting for Tent 11 construction. Construction will begin by November 3, 1993. The committee also completed determination for the project to replace tent doors and vents. It was classified as covered work. RFP Engineering completed the draft Title II package, and the Title II review meeting was held on October 21, 1993.

Water Management - The Building 910 evaporator operated 17 days this month. The problem of high conductivity distillate continues. The conductivity probes on Unit 2 were found to be faulty because of a short in the wiring, the system is still not reading properly, and will be a problem until the wiring is repaired. This problem could explain the presence of high conductivity distillate in the tanks but not how it is being produced.

Building 374 had problems with the evaporator and a leak in the condensate return line. Consequently, water was pumped to Building 374 for only 4 days this month. The condensate return line is the receiver for most of the product water. An extended shutdown of Building 374 will be required to fix the leak. Preparations for the shutdown of Building 374 are underway.

Following a discussion with the regulatory agencies, rain water collected in an empty impoundment, Pond 207A, is being pumped into Pond 207C to cover the salt and sludge.

Commencing with the conclusion of the OU 4 dispute resolution, signed by the regulatory agencies and DOE, weekly meetings were held to obtain input from the regulatory agencies on the IM/IRA DD. This exchange of information is part of the streamlined remediation schedule needed to support the new IAG dates for pond closure. The following topics were discussed: COCs, methodology for risk analysis, land-use scenarios, engineered barriers, interfaces with another OU that physically impinges on the OU 4 site, and remediation treatment options.

Planned Work for November

- Arrival of tanks for storage of pond sludge.
- Continued acceleration in the sludge removal schedule is needed to meet DOE's direction. An alternative sludge movement technology will be evaluated.
- Modification to subcontracts will be made to incorporate the scope changes mandated by the dispute resolution.
- Continue pond closure planning. The Action Description Memorandum for the NEPA determination will be prepared and closure alternatives will be evaluated.
- Begin IM/IRA technical consultation.
- Begin Draft Phase II RFI/RI Work Plan.
- Begin core logging of Pond 207 B North.

Problems

- The problem of high conductivity distillate continues in the Building 910 evaporator.
- Building 374 had problems with the evaporator and a leak in the condensate return line. An extended shutdown of Building 374 is required to fix the leak; preparations for the shutdown are underway.

Open Items

- Reprogramming of project budgets to implement the dispute resolution is pending. Some impact on other ER projects is expected as funds are reallocated.
- D&D of Building 788.
- Waste disposal liner issues.

2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation of 10 IHSSs in the Woman Creek drainage: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 - 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881. Two additional surface disturbances have been identified and are located, one south of the Ash Pits and a second west of IHSS 209. These last two sites were included in the OU 5 Work Plan. Possible contamination in this operable unit was caused by landfill operations, storm-water runoff into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include nitrates, depleted uranium, metals, beryllium, solvents, pesticides, oils, paints, and cleaners. Media affected include soils, sediments, surface water, ground water, and air resuspension.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
Submit Final Phase I RFI/RI Work Plan	30 Aug 91

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	30 Nov 93		09 Feb 95*
Submit Final Phase I RFI/RI Report	03 May 94		18 Oct 95*

* TBD due to HHRA issues work stoppage.

October Work Activity Status

There has not been a resolution to the HHRA stop work order; therefore, TMs #12, *Exposure Scenarios*, and TM #13, *Models*, continue to be on hold. The draft TM #12 was reviewed by the regulatory agencies, but there are issues not addressed in the regulatory agencies' comments that need to be addressed concerning this TM. The regulatory agencies have requested a meeting on November 1, 1993, to go over the exposures scenarios for OU 5 and OU 6.

TM #13, *Models*, was scheduled for delivery to the regulatory agencies on September 9, 1992, and was delayed until comments are received from the regulatory agencies on the OU 6 TM #13, *Modeling Surface and Ground Water.* This will allow OU 5 and OU 6 to respond at the same time to comments from the regulatory

agencies. Delaying these two TMs (12 and 13) does not currently impact the schedule for OU 5.

The first successful collection of a synoptic storm event along Woman Creek occurred on October 18, 1993.

The two "hot" and three other samples collected in the Radiologically Controlled Area (RCA) in Individual Hazardous Substance Site (IHSS) 115 Original Landfill left plantsite on October 18, 1993. These samples were originally collected in July 1993, but because of logistical problems could not leave site. A rush order was put on the analytical turn-around time.

A procurement package for conducting a Time Domain Electromagnetic (TDEM) Geophysical Survey within the 133 series of IHSSs was submitted to RFP Procurement. The anticipated start date for this field activity is November 15, 1993.

Technical Memoranda

Project	OU 5-Woman Creek Priority Drainage Remedial Investigation
TM#1	
TM Title	Surface Water and Sediments
TM Status	When preparation is concluded or is estimated to be concluded: 30 Nov 92 Projected date of submittal to EPA/CDH: 30 Nov 92 Actual date of submittal: 13 Oct 92
TM#2	
TM Title	Surface Geophysics
TM Status	When preparation is concluded or is estimated to be concluded: 30 Nov 92 Projected date of submittal to EPA/CDH: 30 Nov 92 Actual date of submittal: 13 Oct 92
TM#3	
TM Title	Soil Sampling at IHSS 115
TM Status	When preparation is concluded or is estimated to be concluded: 07 May 93 Projected date of submittal to EPA/CDH: 07 May 93 Actual date of submittal: 26 Jan 93

TM#4	
TM Title	Soil Sampling at IHSS 133
TM Status	When preparation is concluded or is estimated to be concluded: 07 Jun 93 Projected date of submittal to EPA/CDH: 07 Jun 93 Actual date of submittal: 12 Apr 93
TM#5	
TM Title	Soil Gas Sampling at IHSS 115
TM Status	When preparation is concluded or is estimated to be concluded: 07 May 93 Projected date of submittal to EPA/CDH: 07 May 93 Actual date of submittal: 25 Mar 93
TM#6	
TM Title	Cone Penetrometer at IHSS 115
TM Status	When preparation is concluded or is estimated to be concluded: 14 Apr 93 Projected date of submittal to EPA/CDH: 14 Apr 93 Actual date of submittal: 25 Mar 93
TM#7	
TM Title	Soil Borings at IHSS 133
TM Status	When preparation is concluded or is estimated to be concluded: 07 May 93 Projected date of submittal to EPA/CDH: 07 May 93 Actual date of submittal: 19 Feb 93
TM#8	
TM Title	Monitoring Wells at IHSS 115
TM Status	TM 8, has been canceled, and has been replaced by a letter outlining the justification behind the location of the wells in IHSS 115
TM#9	
TM Title	Monitoring Wells at IHSS 133, Ash Pits, Incinerator and Concrete Wash Pad
TM Status	When preparation is concluded or is estimated to be concluded: 14 May 93 Projected date of submittal to EPA/CDH: 06 May 93 Actual date of submittal: 06 May 93 EPA/CDH comments scheduled: 11 Jun 93 Actual date of submittal: 28 Jun 93
TM#10	
TM Title	Soil Borings at IHSS 209
TM Status	When preparation is concluded or is estimated to be concluded: 06 Mar 93 Projected date of submittal to EPA/CDH: 06 Mar 93 Actual date of submittal: 06 Mar 93

TM #11	
TM Title	Contaminants of Concern
TM Status	To be scheduled in FY94
TM #12	
TM Title	Exposure Scenarios
TM Status	When preparation is concluded or is estimated to be concluded: 30 Jul 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: 7 Jul 93 Currently under a work stoppage
TM #13	
TM Title	Modeling
TM Status	When preparation is concluded or is estimated to be concluded: 28 Jul 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Currently under a work stoppage
TM #14	
TM Title	Toxicity Assessment
TM Status	To be scheduled in FY94

Planned Work for November

- Deliver final TM #12 to the regulatory agencies after stop work order is lifted.
- Deliver final TM #13 to the regulatory agencies after stop work order is lifted.

Problems

Stop work order has prevented continued work to be accomplished on TM #12 and TM #13.

Open Items

The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation.

2.6 OU 6 - WALNUT CREEK

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 21 IHSSs: A-series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North, Pond, and South Area Spray Fields (IHSS 167.1, 167.2 and 167.3); the East Area Spray Field (IHSS 216.1), the Trenches A, B and C (IHSS 166.1, 166.2 and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165); the Old Outfall Area (IHSS 143), and the Soil Dump Area (IHSS 156.2).

Completion of field operations resulted in obtaining the following samples from the IHSSs in OU 6: stream sediment, pond sediment, surface soil, subsurface soil, stream water, pond water, and ground water.

Eleven new ground water monitoring wells, installed in OU 6 to supplement four existing wells, are being sampled each quarter for a minimum of 1 year. Geophysical surveys and radiation surveys were performed in selected areas to supplement the sampling activities.

The regulatory agencies have proposed a new IM/IRA on the operation of the RFP Ponds. If approved, this IM/IRA would affect the RFP pond water management, including OU 6, placing the water under CERCLA rather than the National Pollution Discharge Elimination System (NPDES).

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
Submit Final Phase I RFI/RI Work Plan	16 Sep 91

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	04 Aug 94	10 Jun 94	21 Oct 94*
Submit Final Phase I RFI/RI Report	07 Jan 94	18 Nov 94	10 Jul 95*

* TBD due to HHRA issues work stoppage.

October Work Activity Status

The stop work order has prevented continued work to be accomplished on the TM #4, COCs. Also, responses from the regulatory agencies on TMs #2 and #3 are pending.

A meeting was held with Rocky Flats Environmental Database System (RFEDS) personnel and the subcontractor to resolve errors in the database. Also,

the documentation process for recording the error corrections was established. All of the errors detected were minor and will not influence the interpretation of the data. Ninety-eight percent of the samples were analyzed and are in RFEDS. Work continued on the RFEDS database tables to sort the data by IHSSs and contaminants and perform QA.

The OU 6 database is being checked for frequency of QA samples to ensure that all Work Plan requirements were met.

A meeting was held with the regulatory agencies on October 28, 1993, to go over TM #3, *Modeling Surface and Ground Water.*

Technical Memoranda

Project	OU 6-Walnut Creek
TM#1	
TM Title	Work Plan Modifications
TM Status	Approved by EPA: 08 Jan 93
TM#2	
TM Title	Exposure Scenarios
TM Status	When preparation is concluded or estimated to be concluded: 01 Jul 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: TBD Date when EPA/CDH comments received: N/A
TM#3	
TM Title	Modeling Surface and Ground Water
TM Status	When preparation is concluded or is estimated to be concluded: 01 Jul 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: TBD Date when EPA/CDH comments received: N/A
TM#4	
TM Title	Contaminants of Concern
TM Status	When preparation is concluded or is estimated to be concluded: 15 Dec 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when EPA/CDH comments received: N/A Currently under a work stoppage

TM#5	
TM Title	Toxicity Factors
TM Status	When preparation is concluded or is estimated to be concluded: 15 Dec 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when EPA/CDH comments received: N/A
Planned Work for November	• Continue finalization of TMs #2 and #3.
Problems	Stop work order has prevented continued work to be accomplished on the TM #4, COCs.
Open Items	The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation.

2.7 OU 7 - PRESENT LANDFILL

The Present Landfill - OU 7 is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of two IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August of 1968 and was originally constructed to provide for disposal of RFP's nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill; consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	28 Aug 91

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	12 Oct 93		20 Dec 93*
Submit Final Phase I RFI/RI Report	16 Mar 94		02 Sep 94*
Submit Draft Phase II RFI/RI Work Plan	13 Sep 94		07 Aug 95*
Submit Draft Phase I Proposed IM/IRA DD	01 Nov 94	14 Feb 97*	
Submit Final Phase II RFI/RI Work Plan	15 Feb 95	15 Apr 96*	
Submit Final Phase I Proposed IM/IRA DD	06 Apr 95	16 Oct 97*	
Submit IM/IRA Responsiveness Summary	14 Aug 95	14 May 98*	

*TBD due to HHRA issues work stoppage.

October Work Activity Status

Work continues on a proposed framework for revising the current IAG scope and schedule. Conversations with the regulatory agencies indicate that they agree with the proposed rescoping. A working group composed of members from the regulatory agencies, DOE, and EG&G began meeting to develop data quality objectives (DQOs) for OU 7 rescoping.

The draft SOW for modification of the current subcontract incorporating rescoping changes is being revised according to comments made by RFP Procurement on the most effective means to implement the subcontract. Cost estimates are under development. The regulatory agencies have not resolved the issue of a methodology for data aggregation. This will impact the time frame for the current stop work order.

Technical Memoranda

Project	**OU 7 - Present Landfill**
TM #1	
TM Title	Exposure Scenarios
TM Status	Initial reviews completed by DOE/HQ and DOE. Review completed by EPA and CDH. Response summary developed and submitted to all parties for review. Reviews complete. Revised response summary completed 25 May 93, with a final review underway prior to transmittal to the agencies.
TM #2	
TM Title	Model Description.
TM Status	Transmitted to EPA and CDH for review: 08 Jan 93 Initial review by EPA, CDH, and DOE completed: 30 April 93 Draft response summary complete: 25 May 93
TM #3	
TM Title	Addendum to Final Phase I RFI/RI Work Plan. Surface Soil and Asbestos Pit Disposal Area Characterization Plan.
TM Status	Transmitted to DOE for review: 05 Feb 93 Transmitted to the EPA and CDH for review: 08 Feb 93 Comments received: 26 Apr 93 Conditional approval by the EPA and CDH received: 22 Feb 93 Clarification of outstanding comments from EPA and CDH received: 03 May 93
TM #4	
TM Title	Contaminants of Concern
TM Status	Currently under a work stoppage

Planned Work for November

- Continue to finalize the rescoping for OU 7.
- Award IM/IRA Subcontract.

Problems	Stop work order has prevented continued work to be accomplished on TM #4.
Open Items	The regulatory agencies are working to arrive at a compromise approach to the HHRA work stop order issue of data aggregation.

2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of the RFP. Contamination sources within the various IHSSs include above ground and underground tanks, equipment washing areas, and releases inside buildings which potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants also varies widely between the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	01 May 92
Submit Final Phase I RFI/RI Work Plan	01 Dec 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	14 Feb 94		02 Nov 15
Submit Final Phase I RFI/RI Report	12 Jul 94		19 Jul 16

October Work Activity Status

On October 1, 1993, DOE received the Health and Safety Plan (HSP) and comment responsiveness summary on the Final HSP for implementation of nonintrusive field work for the Industrial Area (IA) OUs 8, 9, 10, 12, 13, and 14.

The proposed ranking of the IA OUs IHSSs for potential linkage to Decontamination and Decommissioning (D&D) and the Transition Plan was discussed at a meeting in September 1993. The outcome of the meeting resulted in EG&G continuing work in October 1993 on a formalized plan to move forward on the D&D/Transition linkage and to quantify the intrusive field work for FY94.

RFP Procurement issued a letter subcontract for the IA OU Environmental Evaluation (EE) on October 5, 1993. The IA OU EE field work began on October 13, 1993.

Technical Memoranda	None
Planned Work for November	• Continue the IA OU EE field work and complete the data summary reviews. • Initiate additional data compilation tasks to begin TM #1.
Problems	None
Open Items	None.

2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This activity involves characterizing a series of tanks and associated process waste lines. The original process waste lines (OPWL) consisted of 35,000 feet of buried pipeline that transferred process wastes from production buildings to onsite treatment plants. A system of 60 designated pipe section, 46 storage tank sites, and 3 other areas of suspected process waste leakage are included in OU 9. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced over the 1975-1983 period by the new process waste system. Some tanks and lines from the original system were incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including medical decontamination fluids, miscellaneous laboratory liquids, and laundry effluent. The RFI/RI plan includes inspection and sampling of the OPWL tanks and pipelines that are accessible and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred, near pipe joints and valves, at approximately 200-foot intervals along the pipelines, and by installing borings around the outdoor tanks. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the RFI/RI will determine the need for interim and/or final remediation action.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 91

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	11 Apr 94		04 Jan 01
Submit Final Phase I RFI/RI Report	06 Sep 94		16 Sep 03
Submit Draft Phase II RFI/RI Work Plan	10 Mar 95		23 Jul 04
Submit Draft Phase I Proposed IM/IRA DD	01 May 95		31 Oct 03
Submit Final Phase II RFI/RI Work Plan	07 Aug 95		01 Apr 05
Submit Final Phase I Proposed IM/IRA DD	27 Sep 95		12 Jul 04

October Work Activity Status

DOE met with EG&G to discuss disposition of OU 9's non-RCRA tanks. A letter written by CDH discussing tanks inside buildings was the impetus for this meeting.

A Process Improvement Team (PIT) was established to develop a strategy to disposition all tanks at the RFP. The team includes personnel from DOE and EG&G, and will work to ensure IAG compliance. At the October 19, 1993, meeting a preliminary flow diagram was presented. A meeting on October 21, 1993, discussed comments to the flow diagram and areas of the diagram that will need expanding.

DOE received the OU 9 preliminary draft of TM #1, *Field Sampling Plan Part I Outside Tanks*, on September 30, 1993. TM #1 completed QA review. DOE and EG&G commented on TM #1 on October 14, 1993, and these comments were incorporated into TM #1. The issue of how to handle active tanks is currently being reviewed. DOE's position is that active tanks located outside of buildings should not be included in this field sampling TM. These tanks should be investigated when they are taken out of service. Tanks that previously were identified as active are being rechecked to determine if they are still active.

Technical Memoranda

<u>Project</u>	<u>OU 9-Original Process Waste Lines</u>
TM #1	
TM Title	Stage 1 Field Sampling Plan
TM Status	When preparation is concluded or is estimated to be concluded: Sep 93 Projected date of submittal to EPA/CDH: TBD Actual date of submittal: N/A Date when EPA/CDH comments received: N/A

Planned Work for November

- Complete Final OU 9 TM #1.

Problems

None

Open Items

Issue of how to disposition active tanks in OU 9 TM #1.

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is made up of 15 IHSSs scattered throughout the plant, which consist of various hazardous waste units. Six of the IHSSs are located in the PA, two are located in the buffer zone near the present landfill, and the remaining IHSSs are located near various buildings throughout the plant. The types of wastes identified at these sites range from pondcrete/saltcrete storage and drum storage to a utilization yard with waste spills. A Final Phase I RFI/RI Work Plan is currently in preparation. The primary components of the RFI/RI Work Plan for OU 10 will be an FSP, Baseline Risk Assessment Plan (BRAP) and an EE Work Plan.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	27 Nov 91
Submit Final Phase I RFI/RI Work Plan	01 May 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	25 Aug 94		02 Nov 15
Submit Final Phase I RFI/RI Report	30 Jan 95		19 Jul 16
Submit Draft Phase I Proposed IM/IRA DD	26 May 95		26 Feb 18
Submit Draft Phase II RFI/RI Work Plan	27 Jun 95		25 May 17

October Work Activity Status

DOE held a meeting with EG&G to discuss issues related to IHSSs in OUs 9, 10, and 15 that represent significant problems for characterization and assessment. In OU 10, IHSS 213 (904 storage pad) and IHSS 214 (750 storage pad) cannot be assessed until all materials stored there are removed and all IHSSs are decommissioned. However, IHSSs 213 and 214 are going to be used to store sludge generated by OU 4 IM/IRA activities. DOE wants to transfer these IHSSs to OU 4 and then OU 10 can complete Phase I assessment. The regulatory agencies are aware of these problem and have conceded to a delay in the assessment because of waste storage for OU 4.

A meeting was held on October 18, 1993, among DOE and EG&G to discuss the Environmental Management

Data Validation Plan (DVP). This plan outlines the data validation process that will be adopted for all environmental projects at RFP. This new process is intended to clarify the confusion over the definition of "100% validated data," as required by virtually all of the OU RFI/RI Work Plans. It is anticipated that this plan will reduce the turn-around time for final validated data packages, making data available much earlier than in the past.

The high purity germanium detector (HPGe) truck was granted unrestricted access into and out of the Protected Area (PA). On October 11, 1993, the HPGe truck began making measurements in the PA at IHSS 176, and the 964 laydown area. HPGe gamma survey system continues data collection in IHSS 176 inside the PA. The gamma survey crew detected activity from radioactive waste stored near the boundaries of IHSS 176 in building 964 and in storage containers on the north side of the IHSS. Approximately 50 percent of the ground surface is blocked from the HPGe field of view by materials stored outside of the IHSS boundary. No indication of point source radioactivity was detected. In addition to OU 10, the HPGe truck will be collecting gamma radiation data on IHSSs for OUs 8, 9, and 14. This should take 1 to 2 months to finish all of the data collection for Phase I assessment.

IHSS 170/174 and 176 - Waste Removal Update
A Memorandum of Understanding (MOU) is being drafted to document the responsibilities of various organizations at RFP regarding the removal of materials stored in or around OU IHSSs. DOE does not want EG&G Environmental Restoration Management (ERM) to fund the removal of materials from the OU IHSSs. Until this issue is resolved, no efforts will be made to begin work on removing all materials found in or around IHSSs 170/174 and 176. However, work will proceed in areas where material storage will not adversely affect data collection activities.

While in the PA, the HPGe project team observed crews painting approximately eight concrete barriers within the IHSS boundary. This material obscured the field of view over the southwest portion of IHSS 176, rendering the data collected for these locations invalid. As of October 22, 1993, no progress was made to remove the cement barriers from the IHSS, nor to curtail painting activities. Work is being conducted to resolve this situation.

Technical Memoranda

No TMs have been developed for OU 10. The first TM for OU 10 will be for the nonintrusive field work, tentatively scheduled to be completed in March 1994.

Planned Work for November

- Continue surficial soil sampling in OU 10, IHSS 170/174.
- Begin surface soil sampling in IHSS 176.
- Complete HPGe survey inside the PA.

Problems

- The HPGe team observed crews painting concrete barriers within the IHSS boundary of the PA. This material obscured the field of view over the southwest portion of IHSS 176, rendering the data collected for these locations invalid.
- Characterization and assessment of IHSSs in OUs 9, 10, and 15 represent significant problems until materials stored in the IHSSs are removed so the IHSSs can be assessed.

Open Items

None

2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the Rocky Flats Plant buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207-B North and Center (contaminated ground water in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105.1 acres, 38.3 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and ground water.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	02 Jan 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	20 Sep 94		18 Apr 95
Submit Final Phase I RFI/RI Report	22 Feb 95		03 Jan 96
Submit Draft Phase II RFI/RI Work Plan	21 Aug 95		25 Nov 96

October Work Activity Status

TM #1, *Revised Field Sampling DQO*, to revise the OU 11 FSP is undergoing continued review. The COC section for the revised FSP is being rewritten to reflect recent regulatory agency policy changes. Meetings were held to discuss the modeling portion of the DQOs.

The SOW to procure a subcontract for field work is being reviewed with the revised FSP as guidance for work that will be expected for the RFI/RI field investigation.

DOE received a request from EG&G for concurrence with the revised EE. The new approach incorporates a three-phased ecological risk assessment. OU 11 needs this concurrence to incorporate this format change into the upcoming EE reporting process and risk assessment.

Technical Memoranda

Project	**OU 11 - West Spray Field**
TM #1 Title:	Revised Field Sampling Plan and Data Quality Objectives.
Status	Under development HHRA Technical Memoranda is scheduled to begin in FY94
Planned Work for November	• Complete review of TM #1. • Complete environmental effects assessment. • Submit the SOW. • Obtain NEPA documentation to begin field work.
Problems	None
Open Item	None

2.12 OU 12 - 400/800 AREA

The 400/800 Area involves assessment and remediation of the 10 IHSSs at the 400/800 Area: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - north, east , south, and west of Building 460 (IHSSs 136.1, and 136.2); Building 881 - Conversion Site(147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and a HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. A Phase II Investigation may be performed as necessary. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision (ROD), release to the public, and implementation of the plan.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work plan	08 May 92
Submit Final Phase I RFI/RI Work plan	05 Oct 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	20 Apr 94		11 Mar 99
Submit Final Phase I RFI/RI Report	15 Sep 94		17 Nov 99

October Work Activity Status

OU 12 began work towards implementing the surficial soil sampling portion of the OU 12 Work Plan. All HPGe radiological survey locations were completed in the 400/800 Area. Because of the extensive gamma ray activity from Building 664, certain portions will have to be surveyed again. Another alternative would be to take surficial soil samples for radiological analysis and eliminate any *in situ* gamma measurements.

Technical Memoranda	None
Planned Work for November	• Begin surficial soil sampling in paved areas. • Begin soil gas survey.
Problems	None
Open Items	None

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of 14 IHSSs: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); and the Hydrogen Peroxide Spill (IHSS 191), and the Scrap Metal Site (IHSS 197).

Assessment will consist of preparing a Phase I RFI/RI Work plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. A FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work plan	15 May 92
Submit Final Phase I RFI/ RI Work plan	12 Oct 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	08 Aug 94		24 Mar 99
Submit Final Phase I RFI/RI Report	11 Jan 95		02 Dec 99

October Work Activity Status

Comments from the regulatory agencies on the Draft Compendium of *in situ* Radiological Methods and Applications at RFP were discussed. A response to comments and a final version of the document are scheduled to be delivered to the regulatory agencies on December 1, 1993.

A SOW/change request to have the subcontractor complete revisions to the draft compendium of *in situ* radiological methods and applications at RFP is underway. A meeting with RFP Procurement to resolve issues was set.

The sampling points in IHSSs 158/117.2 were relocated. A sampling map was generated. A letter report and sampling plan were prepared for approval by the regulatory agencies. The Sodium Iodide (NaI) survey of IHSS 197 was completed. The results indicate that the source of the higher HPGe readings is not in the accessible area of the IHSS. There were two elevated readings; surficial soils at these points will be sampled.

Work continues on the SOPs. History files for the HPGe procedures G.T. 26-30, BAT sampling G.T. 22, and Tensiometers G.T. 31 were reviewed and turned over to RFP Environmental Quality Support (EQS).

HPGe survey of the small portion of OU 13 IHSS in the PA was conducted. Survey results from areas outside the PA were entered into the Geographic Information System (GIS) database. Discrepancies in the point locations from the Global Positioning Satellite System indicate that the base map of the plant has errors.

Technical Memoranda

The current Five-Year Plan (FYP) indicates TM #1, *Human Health Risk Assessment-Exposure Assessment*, and TM #2, *Human Health Risk Assessment-Modeling*, are scheduled for completion in 1994. These tasks will require rescheduling due to the integration of OUs 8, 9, 10, 12, 13, and 14. Currently, only nonintrusive RI field work is scheduled for OU 13 in FY94. Preparation of the TMs will not begin until FY95.

A nonintrusive TM will be prepared in FY94 summarizing the nonintrusive field work and recommending Stage II activities for the remedial investigation intrusive field work.

Planned Work for November

- Continue work on the integrated FSP.
- Conduct ORR for the integrated OUs.
- Generate changes to GT.08 surficial soils sampling procedure, if needed.

Problems	None
Open Items	SOPs need to be issued as controlled documents.

2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an EE and an HHRA. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and feasibility study of the project. This process includes review and approval by EPA and CDH, followed by a ROD, release to the public, and implementation of the plan.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	26 Jun 92
Submit Final Phase I RFI/RI Work Plan	19 Oct 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	20 Dec 94		13 Feb 01
Submit Final Phase I RFI/RI Report	23 May 95		22 Oct 01

October Work Activity Status

A meeting was held to brief the regulatory agencies on the status of the integrated OU project. A letter was transmitted to EPA requesting a status on the approval of the Final Phase I RFI/RI Work Plan for OU 14.

Large scale maps showing the proposed locations for surficial soil sampling were prepared for the integrated program. A comparison was conducted to ensure that the quantity and location of sites are consistent with the

locations depicted in the FSP of the OU 14 Phase I RFI/RI Work Plan.

Technical Memoranda

The current FYP indicates TM #1, *Human Health Risk Assessment-Exposure Assessment*, and TM #2, *Human Health Risk Assessment-Modeling*, are scheduled for completion in March 1994. These tasks will require rescheduling because of the integration of OUs 8, 9, 10, 12, 13, and 14. Currently, only nonintrusive RI field work is scheduled for OU 14 in FY94. Preparation of the TMs will not begin until FY95.

A nonintrusive TM will be prepared in FY94 summarizing the nonintrusive field work and recommending Stage II activities for the remedial investigation intrusive field work.

Planned Work for November

- Continue to work on the integrated FSP.
- Conduct ORR for the integrated OUs.

Problems

None

Open Items

None

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 is composed of seven IHSSs: IHSS 178, Building 881 - Drum Storage Area; IHSS 179, Building 865 - Drum Storage Area; IHSS 180, Building 883 - Drum Storage Area; IHSS 204, RCRA Unit 45 - Original Uranium Chip Roaster; IHSS 211, RCRA Unit 26, Building 881 - Drum Storage Area; IHSS 212, RCRA Unit 63, Building 374 Drum Storage Area; and IHSS 217, RCRA Unit 32, Building 881 - Cyanide Bench Scale Treatment. The seven IHSSs currently have interim status under RCRA.

Closure Plans for the IHSSs were submitted to CDH during 1988 and 1989. The IHSSs were also included within the IAG to undergo a RCRA Facility Investigation/Remedial Investigation (RFI/RI). During scoping meetings for preparation of the Phase I RFI/RI Work Plan for OU 15 conducted between EPA, CDH, and DOE during April 1992, the Closure Plan and RFI/RI Processes were combined. In affect, Clean Closure Performance Standard (6 CCR 1007-3, Part 265.111) will serve as the Applicable or Relevant and Appropriate Requirements (ARARs) for the OU 15 RFI/RI inside buildings, and Closure Plans will no longer be prepared. The public comment period required for the Closure Plan process will be fulfilled through the IM/IRA process of the IAG.

Drums containing solids and liquids were stored at the OU 15 IHSSs. Types of waste included oils, coolants and solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes) and waste paints and waste metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium. The major activity proposed is characterization of contamination associated with the OU 15 IHSSs both inside and outside buildings and, if applicable, decontamination of the concrete floors at the indoor facilities and remediation of contamination outside buildings.

During April 1992, IHSS 215, Unit 55.13-Tank T-40, was deleted from OU 15 and added to OU 9 as part of a IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992. Similarly, IHSS 212, RCRA Unit 63 was removed from the OU 15 RFI/RI process since it is currently active as a Drum Storage Area and was included in the Rocky Flats Plant RCRA Part B TRU Mixed Waste permit application.

Scope of Work Changes This Period	None	
Technical Approach Changes This Period	None	
IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
	Submit Final Phase I RFI/RI Work Plan	26 Oct 92

Future IAG Milestones Through FY95

Milestone Name	IAG Date Scheduled	Extension Status	Planned Accomplishment Date
Submit Draft Phase I RFI/RI Report	01 Aug 94		01 Aug 94
Submit Final Phase I RFI/RI Report	04 Jan 95		04 Jan 95

October Work Activity Status

OU 15 environmental sampling is expected to be delayed by the presence of equipment and drums located within Room 32 of Building 447 (IHSS 204). Pre-job radiological surveys produced smear samples that were above acceptable limits within Room 32. In order to comply with SOPs for health and safety, the ALARA procedures will be initiated and Room 32 decontaminated prior to removing drums and obtaining samples from within the room. Fog tests and derived air concentration (DAC) tests were completed to fulfill the ALARA review for Room 32 (IHSS 204). Drums were removed from IHSS 204, Room 32, and environmental sampling was completed. In addition, a potential conflict exists between OU 15 field work within Building 447 and waste characterization work required by the Nevada Test Site (NTS). However, uranium oxide sampling is currently delayed by ALARA review, which could allow OU 15 sampling to proceed without further delay if the drums and equipment within Room 32 are removed.

Preparation of the OU 15 FSP for TM #1 began. Available chemical analysis data (not validated) are being obtained and evaluated.

Technical Memoranda

Preparation of the FSP TM and the HHRA TM is not anticipated to begin until FY94.

Planned Work for November

- Complete OU 15 field work inside buildings and begin preparation of TM #1.

Problems

None

Open Items

None

2.16 OU 16 - LOW PRIORITY SITES

This assessment activity consists of preparing a "No Further Action Justification Document" for seven IHSSs: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks (400 and 700 Areas), Nickel Carbonyl Disposal, Water Treatment Plant Backwash Pond, and Scrap Metal Sites. In addition, the draft document must be reviewed, comments resolved, and the draft finalized.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft No Further Action Justification Document	04 Mar 92
Submit Final No Further Action Justification Document	30 July 92
Submit Revised Final NFAJ Document	16 Oct 92

Future IAG Milestones Through FY95

None

October Work Activity Status

The No Further Action Justification (NFAJ) Document was approved by the regulatory agencies and DOE.

The Proposed Plan (PP) and draft modification of Colorado Hazardous Waste Permit for RFP OU 16: Low Priority Sites was finalized and approved for public comment by the regulatory agencies and DOE.

The following steps outline the schedule for the Public Comment Period and Public Hearings for the PP:

October 25, 1993	- EPA finalized the PP based on comments received by October 1, 1993.
November 2, 1993	- Final PP mailed to the community reading rooms.
November 8, 1993	- Public comment period begins for a 60-day duration.
December 8, 1993	- Public hearing held from 9:00 p.m. to 10:00 p.m., Denver Marriott West, Golden, Colorado

November 8, 1993 - Public Comment Period ends.
- January 7, 1994

Technical Memoranda None

Planned Work for November See schedule for the Public Comment Period and Public Hearings for the PP.

Problems None

Open Items None

2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and other activities required by the IAG and that apply to RFP environmental restoration activities in general. The activities include, but are not limited to, the HSP, a Sampling and Analysis Plan, a Plan for Prevention of Contaminant Dispersion, the Community Relations Plan, the Discharge Limits for Radionuclides Work Plan, Treatability Study deliverables, the Background Study Plan, Administrative Record, State Response (support for CDH oversight), Historical Release Report, Operations Management, Decontamination Facilities, Contractor yard support, ER Waste handling facilities, geologic characterization, hydrogeologic characterization, and ground water monitoring.

Scope of Work Changes This Period

None

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Background Study Report (Water)	15 Dec 89
Submit Draft Background Study Report (Soils)	15 Dec 89
Submit Draft Community Survey Plan	23 Jan 90
Submit Final Community Survey Plan	22 Mar 90
Submit Draft Health and Safety Plan	15 Aug 90
Submit Draft Quality Assurance Project Plan	29 Aug 90
Submit Draft Standard Operating Procedures	29 Aug 90
Submit Draft Plan for Prevention of Contaminant Dispersion	19 Sep 90
Submit Draft Treatability Study Plan	21 Sep 90
Submit Draft Community Relations Plan	01 Nov 90
Submit Final Health and Safety Plan	12 Nov 90
Submit Revised Background Study Report	21 Dec 90
Submit Final Community Relations Plan	22 Jan 91
Submit Final Quality Assurance Project Plan	01 Mar 91
Submit Final Standard Operating Procedures	01 Mar 91
Submit Draft Radionuclides Discharge Limits Plan	05 Apr 91
Submit Community Relations Plan Responsiveness Summary	21 Jun 91
Submit Final Treatability Study Plan	03 Jun 91
Submit Final Plan for Prevention of Contaminant Dispersion	22 Jul 91

Submit Final Plan Discharge Limits Radionuclides	16 Sep 91
Submit Final PPCD and Responsiveness Summary	25 Nov 91
Submit Draft Historical Release Report	08 Jan 92
Submit Responsiveness Summary for DLRP	31 Jan 92
Submit Final Historical Release Report	03 Jun 92
Submit Annual Treatability Study Report	08 Mar 93

Future IAG Milestones Through FY95

None

October Work Activity Status

Sitewide Activities

Colloid Polishing Filter Method (Techtran) - This process uses a proprietary chemical complexing agent to remove heavy metals and/or radionuclides contaminants from waste water or ground water. EPA's Risk Reduction Engineering Laboratory (Cincinnati) supported a demonstration of this technology at RFP through its Superfund Innovative Technology Evaluation (SITE) program. A series of five tests were successfully run in September 1993.

After completion of the test work, the CPFM equipment was transported to the decontamination pad where decontamination operations were conducted on October 1, 1993. Radiation protection technologists (RPTs) surveyed the equipment for return to the technology vendor. The surveys were completed and the equipment was transported offsite on October 18, 1993. A poster session has been scheduled for the EPA SITE Demonstration during the upcoming Fifth National Technology Information Exchange (TIE) Workshop scheduled for November 16 through 19, 1993, in Denver, Colorado.

Bioremediation - The regulatory agencies requested that EG&G Environmental Science and Engineering (ES&E) consider bioremediation as a potential technology for use at RFP. Since the topic is so broad, ES&E is attempting to narrow the scope to items that are applicable to RFP. A draft of a general overview report was completed and reviewed. The second draft will focus specifically on contamination problems at RFP and potential biotreatment processes that might be tested. RFP specific problems include Volatile Organic Compounds (VOCs) (CC14, TCE, Diesel) and Radionuclides (U, Pu, and Am).

A preliminary proposal from Los Alamos National Laboratories (LANL) on performance of biotreatability study during FY94 was received and is being reviewed.

A schedule for Bioremediation Literature Review and a detailed outline for the Work Plan was completed on October 29, 1993.

Inductively Coupled Plasma Mass Spectrometer (ICP-MS) - The revised work package for the Sitewide Treatability Studies Program now contains funding to purchase and install an ICP-MS in the treatability laboratory in Building 881. The addition of this equipment will significantly increase the analytical capability of the laboratory and will result in lower analytical expenses and quicker turn-around times for treatability studies conducted in the future.

The ICP-MS was delivered to RFP. The utility package to upgrade the electrical capability and the duct work was submitted to EG&G Engineering for review. EG&G Engineering developed a schedule to install the ICP-MS; installation should be completed by December 9, 1993. Additional equipment will be purchased in FY94. The schedule to procure this equipment is being developed.

Magnetic Separation - High Gradient Magnetic Separation (HGMS) is one of the technologies identified in the Final Sitewide Treatability Plan for further test work and evaluation to determine if it effectively removes plutonium from contaminated soils. LANL was identified as the most appropriate place to carry out this test work.

Communication was established at LANL to perform magnetic separation treatability studies on plutonium contaminated soil samples from RFP. A SOW/Purchase Requisition package to "sole source" this study was prepared. LANL was contacted for input on the SOW. The package went to RFP Procurement on October 15, 1993.

The schedule will require modification once the contract is awarded since all activities depend on the start date. It is anticipated that the entire program will last 4 months and the progress report will be generated before the end of FY94.

Ion Exchange and Adsorption - Ion Exchange and Adsorption are two of the technologies identified in the Final Sitewide Treatability Plan. They are identified for further test work and evaluation to determine how

effectively they might remove various contaminants from surface and ground water at RFP. DOE received a progress report on October 7, 1993.

Community Relations

ER93 EXPO - ER93 was held in Augusta, GA, from October 24, 1993, through October 28, 1993. This conference provided a broad technical and programmatic exchange of ideas and activities on major topics related to ER of DOE facilities and sites.

The Community Relations Plan is being updated. The current scheduled date for the draft revised plan is January 1994.

Administrative Record (AR) - A schedule was prepared for review and capture of regulatory agencies, DOE, and EG&G AR documents. DOE and the regulatory agency documents will be reviewed after DOE approves the schedule.

Integrated Operable Units - OUs 8, 9, 10, 12, 13, and 14 - A soil sampling practice run was completed on October 13, 1993, to allow the subcontractor to practice soil sample collection techniques in accordance with SOPs prior to initiation of field work for OU 10 and 12. OU 10 began field work in the Property Utilization and Disposal (PU&D) yard on October 20, 1993.

Industrial Area Interim Measures/Interim Remedial Action Plan (IA IM/IRAP) - A kickoff meeting was held October 7, 1993, with DOE and EG&G. The purpose of the meeting was to discuss the project's scope and schedule, implementation of specific project activities such as responsibilities relative to the project. The project is being designed to avoid duplication of data or previous efforts. A HSP for the IM/IRA is being derived from the existing HSP for the Integrated OUs. This will allow a more cost effective implementation of data verification of site walks for the project. Site characterization data will also be obtained from the Integrated OU project to expedite the development of the IM/IRA document.

Surface Water Management IM/IRA - Draft Chapters One through Five of the Draft Surface Water Management IM/IRA DD are in review by RFP personnel. Final option evaluation for risk analysis and NEPA were initiated. DOE will review the final draft document on February 10, 1994. The final chapter,

Chapter Six, is being developed. Chapter Six describes implementation plans for the selected options.

Planned Work for November

- Continue updates on AR.
- Continue Community Relations activities.
- Continue installation of the ICP-MS.

Problems

None

Open Items

None

SECTION 3.0 ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the Environmental Management Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or State-authorized representative may make arrangements to observe fieldwork and to obtain split or duplicate samples.

3.1 SURFACE WATER AND SEDIMENTS

- Each of the Surface Water Stations (approximately 20 stations) are sampled quarterly.
- Each of the Sediment Stations (approximately 10 stations) are sampled quarterly.
- Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOA	Radionuclides
Metals CLP TAL & Non-TAL	Temperature
Field Parameters	TDS/TSS
Specific Conductivity	pH
Dissolved Oxygen (DO)	Nutrients
Major Anions	

- Additionally, sediment samples are analyzed for: CLP-Semi VOAs, CLP-Pesticides/PCBsHerbicides-619

3.2 SOILS

- Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) are sampled annually.
- Each soil sample is analyzed for plutonium and americium.

3.3 GROUND WATER

A total of 410 ground water stations are sampled quarterly; this includes alluvial wells, bedrock wells, and pre-1986 wells. Approximately one third of the wells are monitored monthly for water levels. Each ground water sample is analyzed for CLP, TCL, VOAs, TAL, Metals, as well as the following parameters:

Radiochemical Parameters	Inorganic Parameters	Field Parameters
Gross Alpha	Nitrate/Nitrite	Dissolved Oxygen (DO)
Gross Beta	Total Phosphorous	Specific Conductivity
Plutonium	Ortho-Phosphate	Temperature
Americium	Ammonia	Turbidity
Strontium	TDS	pH
Tritium	Chlorine	
Uranium	Fluorine	
Cesium	Sulfate	
	Carbonate	
	Bicarbonate	
	TSS	
	Total CLP Metals & additional metals	
	Dissolved CLP & additional metals	
	Cyanide	
	CLP Volatile Organic Constituents	

SECTION 4. CONTRACTOR/SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the RFP ER Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
1	Assessment	Ebasco	Dames & Moore	CMS/FS Report	Jan 92
1	Assessment	Dames & Moore		Public Health Evaluation	Apr 93
1	Assessment	Roy F. Weston		Revise RI Report, respond to agency comments	Feb 93
1	Assessment	S.M. Stoller		Environmental Evaluation	Apr 93
1	Remediation	Resource Tech.		B-891 Treatment System Operations Group, Inc. (RTG)	
2	Assessment	Woodward-Clyde		OU 2 RFI/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Ebasco	S.M. Stoller	Environmental Evaluation	Feb 91
	Assessment	Woodward-Clyde	Layne	OU 2 RFI/RI Work Plan (bedrock), surficial soils	Mar 93
2	Remediation (RFG in April)	Reidel		Installation and operation of the water treatment system for South Walnut Creek Phase of OU 2 IRA	Jan 91
3	Assessment	IT Corporation	CH2M Hill	OU 3 Field Work and RI Report	Apr 92
3	Assessment	MRI		Wind Tunnel/Soil Resuspension Study	Aug 92
4	Remediation	HNUS	Halliburton Spec. Services	Demobilize	Sep 91
4	Assessment	Parsons/Eng Science	Geraghty & Miller	Implement the Phase I RFI/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92
4	Remediation	ERM-Rocky Mountain	Geraghty & Miller	Post-closure monitoring plan	Nov 93
5	Assessment	ASI	Dames & Moore Blackhawk GeoWalsh & Assoc. Layne Envir. Service Utility Mgmt. Service S.M. Stoller Adv. Terra Testing	Implementation of OU 5 Work Plan (excluding EE)	Jun 92

OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
5	Assessment	S.M. Stoller		Implementation of EE section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward-Clyde	Lane, Ogden, Geo Environmental	OU 6 RFI/RI Work Plan and Quality Assurance Addendum	Aug 92
6	Assessment	S.M. Stoller		EE	Sep 92
7	Assessment	S.M. Stoller	Walsh & Assoc.	OU 7 RFI/RI Work Plan including EE Plan and QA Addendum	Apr 90
8	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
9	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs	Aug 93.
10	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
12	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
13	Assessment	Jacobs Eng.	Walsh & Assoc.	(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
14	Assessment	Jacobs Eng.		(No Sub tier subcontract) implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs.	Aug 93
15	Assessment	S.M. Stoller		OU 15 RFI/RI Work Plan	May 92
15	Assessment	ERM-Rocky Mtn.	G.S. Miller, Inc.	Implementation of the RFI/RI Work Plan	Mar 93
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	Adm. Record	QuantaLex		Maintain IAG Administrative Record	Oct 90
SW	Geo. Char.	Jacobs Eng.		Well Abandonment and Replacement	Mar 93
SW	Geo. Char.	Colorado State University		Support M.S. thesis of Structural Geology, of Front Range Area Near RFP	Nov 91
SW	Geo. Char.	S.M. Stoller		Prepare 1992 Annual RCRA Report and Addendum	Jan 93
SW	Geo. Char.	Colorado School of Mines		Masters level training program in ES and Engineering	Aug 92 Dec 94
SW	Geo. Char.	Woodward-Clyde		Support for the SSWMS	Feb 93

OU	Project	Subcontractor	Sub-Subcontractor	Work Description	Start Date
SW	Geo. Char.	Colorado State University		Sequential Extraction	April 92
SW	Geo. Char.	University of Colorado		Soil Monitoring Vadose Zone	Jun 92
SW	Geo. Char.	S.M. Stoller		Spatial Analysis/Computer Support	Mar 93
SW	Geo. Char.	Woodward Clyde	SAIC/Wright Water		Jan 93
SW	Monitoring	IT Corporation		Analytical Services for ground water, surface water, and sediment	Jul 90
SW	QA	SAIC		Develop and implement QA program and field operations oversight	Dec 90
PM	Support	S.M. Stoller		Program Management Support	Oct 92
PM	QA Support	SAIC		Provide QA/QC support to ER Program	Nov 92

Acronyms

ADS	Activity Data Sheet
AIP	Agreement In Principle
ALARA	As Low As Reasonably Attainable
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirements
ASRP	Accelerated Sludge Removal Project
BAT	Best Available Technology
BCP	Baseline Change Proposal
BOA	Basic Ordering Agreement
BRAP	Baseline Risk Assessment Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
CMS	Corrective Measures Study
COC	Contaminant Of Concern
CPT	Cone Penetrometer Testing
CPFM	Colloid Polishing Filter Method
CRP	Community Relations Plan
CSU	Colorado State University
DAC	Derived Air Concentration
DCN	Document Change Notice
DD	Decision Document
D&D	Decontamination & Decommissioning
DLRP	Discharge Limits Radionuclides Plan
DOE	Department of Energy
DQO	Data Quality Objectives
DVP	Data Validation Plan
E&WM	Environmental and Waste Management
EA	Environmental Assessment
EE	Environmental Evaluation
EIS	Environmental Impact Statement
EM	Environmental Management
END	Environmental NEPA Division
EPA	Environmental Protection Agency
EQS	Environmental Quality Support
ER	Environmental Restoration
ERA	Ecological Risk Assessment
ESE	Environmental Science and Engineering
FIDLER	Field Instrument for Detection of Low Energy Radiation
FS	Feasibility Study
FSP	Field Sampling Plan
FTU	Field Treatability Unit
FYP	Five-Year Plan

GAC	Granular Activated Carbon
GIS	Geographic Information System
GPR	Ground Penetrating Radar
H&S	Health and Safety
H&SP	Health and Safety Plan
HAP	Health Advisory Panel
HGMS	High Gradient Magnetic Separation
HHRA	Human Health Risk Assessment
HPGe	High Purity Germanium
HRR	Historical Release Report
IA	Industrial Area
IAG	Interagency Agreement
ICP-MS	Inductively Coupled Plasma Mass Spectrometer
IDM	Investigative Derived Material
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
ITS	Interceptor Trench System
IWCP	Integrated Work Control Package
IX	Ion Exchange
LANL	Los Alamos National Laboratory
LATO	Los Alamos Technology Office
LL	Low-level
LLMW	Low-level Mixed Waste
MOU	Memorandum of Understanding
MSVEU	Mobile Soil Vapor Extraction Unit
MTS	Master Task Subcontract
NAPLs	Non-Aqueous Phase Liquids
NEPA	National Environmental Policy Act
NFAJ	No Further Action Justification
NPDES	National Pollution Discharge Elimination System
NTS	Nevada Test Site
O&M	Operations and Management
OPWL	Original Process Waste Line
ORR	Operational Readiness Review
OTD	Office of Technology Development
OU	Operable Unit
PA	Protected Area
PAC	Potential Area of Concern
ppb	Parts per billion
PCCB	Plant Change Control Board
PCP	Process Control Plan
PIT	Process Improvement Team
PP	Proposed Plan
PPCD	Plan for Prevention of Contaminant Dispersion
PPE	Personal Protective Equipment
PU&D	Property Utilization and Disposal
QA	Quality Assurance

QAPP	Quality Assurance Project Plan
QP	Quality Plan
RAGS	Risk Assessment Guidance for Superfund
RCA	Radiological Control Area
RCRA	Resource Conservation and Recovery Act
RFEDS	Rocky Flats Environmental Database System
RFI	RCRA Facilities Investigation
RFP	Rocky Flats Plant
RI	Remedial Investigation
ROD	Record of Decision
RPT	Radiological Protection Technician
SAR	Safety Analysis Report
SID	South Interceptor Ditch
SITE	Superfund Innovative Technology Evaluation
SMO	Sample Management Office
SOP	Standard Operating Procedure
SOW	Statement of Work
SPPO	Solar Ponds Program Office
STP	Sewage Treatment Plant
SVE	Soil Vapor Extraction
SW	Surface Water
TCE	Trichloroethene
TDS	Total Dissolved Solids
TIE	Technology Information in Exchange
TM	Technical Memorandum
TRG	Technical Review Group
TSR	Treatability Study Report
TSS	Total Suspended Solids
UBC	Under Building Contaminations
USFWS	United States Fish and Wildlife Service
UV	Ultraviolet
VOA	Volatile Organic Analyte
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure
WS	Waste Solidification